

Claims:

1. A method of refrigerating an item, which method includes cooling a working fluid to a temperature lower than that of an item to be refrigerated;
- 5 dispensing the cooled working fluid onto the item thereby, on account of heat exchange between the working fluid and the item, extracting heat from the item to refrigerate the item; and
- collecting the dispensed working fluid for re-use.
2. A method as claimed in Claim 1, in which the working fluid is
- 10 cooled to a predetermined temperature and is continuously dispensed onto the item for a time required to refrigerate the item to a desired temperature.
3. A method as claimed in Claim 1 or Claim 2, in which dispensing of the working fluid onto the item is by spraying it onto the item.
4. A method as claimed in any one of the preceding claims, in
- 15 which collection of the dispensed working fluid is by collecting it under the influence of gravity by means of catchment means.
5. A method as claimed in Claim 4, which is executed in a substantially enclosed refrigeration zone with walls defining the enclosed zone forming the catchment means.
- 20 6. A method as claimed in any one of the preceding claims, in which cooling of the working fluid is by bringing it into direct contact with an evaporator forming part of a closed-loop refrigeration system.

7. A refrigeration unit which includes
a refrigeration zone for receiving an item or items to be refrigerated;
dispensing means oriented relative to the refrigeration zone so as to
enable dispensing of a working fluid into the refrigeration zone; and
5 catchment means arranged relative to the refrigeration zone so as to
collect the working fluid after it has been dispensed into the refrigeration
zone.
8. A unit as claimed in Claim 7, which includes cooling means for
cooling the working fluid in use.
- 10 9. A unit as claimed in Claim 8, which includes a first enclosed
compartment, having a sealingly closeable access opening, within which the
refrigeration zone is defined, with walls of the compartment forming the
catchment means.
- 15 10. A unit as claimed in Claim 9, in which the dispensing means
includes spraying nozzles located within the first compartment, the spraying
nozzles being mounted on or proximate at least some of the walls of the
compartment and oriented to direct the working fluid away from their
associated walls.
- 20 11. A unit as claimed in Claim 9 or Claim 10, in which a floor or
bottom wall of the first compartment is apertured to pass working fluid flowing
operatively downwardly under the influence of gravity, thereby to direct
collected working fluid in use.
- 25 12. A unit as claimed in Claim 10 or Claim 11 inclusive, which
includes a second enclosed compartment within which the working fluid is
received and cooled in use, the second compartment being in fluid flow

communication with the first compartment so as to receive the collected working fluid passing through the aperture or apertures in the bottom wall of the first compartment.

5 13. A refrigeration unit as claimed in Claim 12, in which the second compartment is positioned below the first compartment to permit collected working fluid to flow from the first compartment into the second compartment under the influence of gravity.

10 14. A refrigeration unit as claimed in Claim 12 or Claim 13, in which the cooling means includes a primary, closed-loop refrigeration system having an operatively interconnected condenser, expansion means, evaporator, and compressor with associated motor, and having an associated refrigerant, with the evaporator being positioned in the second compartment so as to extract heat from the working fluid in the second compartment in use, thereby to cool the working fluid.

15 15. A refrigeration unit as claimed in Claim 14, which includes a secondary, closed-loop refrigeration system substantially similar to the primary, closed-loop refrigeration system, with an evaporator of the secondary refrigeration system in heat exchange relationship with the condenser of the primary refrigeration system thereby to extract heat from
20 the condenser and, hence in use, to enable cooling of the primary refrigeration system refrigerant and, accordingly, the working fluid to lower temperatures.

25 16. A refrigeration unit as claimed in Claim 14 or Claim 15, which includes a portable housing which houses the components of the or each refrigeration system and within which the first compartment and the second compartment are defined.

17. A refrigeration unit as claimed in any one of Claims 12 to 16 inclusive, which includes a pump having its inlet in fluid flow communication with the second compartment and its outlet in fluid flow communication with the spraying nozzles, the pump being activatable so as to pump the working
5 fluid from the second compartment to the spraying nozzles for dispensation thereof in use.

18. A refrigeration unit as claimed in any one of Claims 12 to 17 inclusive, which includes circulation means for circulating the working fluid in the second compartment in use.

10 19. A refrigeration unit as claimed in any one of Claims 12 to 18 inclusive, in which at least the first and the second compartments are thermally insulated.

20. A method as claimed in Claim 1, substantially as herein described and illustrated.

15 21. A refrigeration unit as claimed in Claim 7, substantially as herein described and illustrated.

22. A new method, or a new refrigeration unit, substantially as herein described.